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ABSTRACT

A study examined the effects of peer evaluation on writing performance and attitudes of ninth-grade students. Data were collected from 11 teachers in eight different schools. Each teacher taught two ninth grade English classes, one according to traditional methods and one with the experimental condition in which students taught each other by commenting on each other's essays in writing. All students wrote discursive essays making use of printed documentation. Five hundred sixty-one students participated in the main attitude survey; 792 essays were written. Results revealed that the difference between peer feedback and teacher feedback produced no differences on writing performance and psychological variables. Also, sex and proficiency level showed little or no effect in relation to type of feedback. (Two figures and 13 tables of data are included; 142 references and a list of the 47 SCO documents available for purchase are attached.) (KEH)

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SCO CAHIER nr. 47

Effects of a teaching program based on peer evaluation on written composition and some variables related to writing apprehension.

G. Rijlaarsdam
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september 1988

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Abstract

This study examines the effects of peer evaluation on writing performance and attitudes of 9th grade students. Research on peer evaluation and a extensive (quasi-) experimentation are described. The results of the experimentation are fairly unambiguous. The difference between peer feedback and teacher feedback produced no differences on Writing Performance and Psychological Variables. It also emerged that sex and proficiency level show little or no effect in relation to type of feedback. In the discussion an attempt is made to explain the results.

1. INTRODUCTION

There has long been an impression that school students can learn a lot from each other. Not a few teachers and researchers have investigated whether this is in fact the case. During the 70s in particular, a new view on learning (interactive instead of monological) and writing (communicative instead of modeling) has led to numerous studies on the effects of peer evaluation. The old idea that skills are developed by practice and the fact that mother tongue teachers always end up with vast piles of correction work have been fertile ground for experimentation with peer evaluation. In this article we report on a field experiment in the Netherlands (Rijlaarsdam, 1986). The results correspond to what has been found in American research. In the discussion we will look more closely at these results as well as at the notion that emerges from the literature, that viz. peer evaluation works.

Why should peer evaluation have a positive effect on the development of written composition skills? There is no theory to explain this, even through much empirical research has been done (see xxx) and advocates of peer evaluation as a didactic measure in the teaching of written composition such as Bruffee (1980), Elbow (1974) and Moffett (1968) base their arguments on suppositions of varying scientific validity. In fact, all there is is a common sense theory.

In the case of reading skills, however, some attempts have been made to formulate a scientific explanation for the results of peer teaching on reading performance (Bloom, 1976). In her monograph Bloom draws on the principles of Dollard and Miller (1950) later to become so important in mastery learning: cues, participation and reinforcement. Because of the one-to-one character of the interaction and the special relation between students, she said, both students who were giving tuition and students who were receiving tuition are learning much from the peer setting. This explanation is plausible but it cannot be transferred to

teaching written composition, which is, after all, already highly individualized; especially in regard to feedback.

Others (Sarbin, 1976; Sarbin & Allen, 1968) have tried to explain the effects of peer teaching from the angle of role taking theory. They postulate that the nature of the relation between students is different from that between students and teachers, and that because of this they reward one another differently (more effectively). Taking the role of teacher puts students in a position in which they can experience feelings and experiences that go with such a role: prestige, authority, competency. This can lead to a positive self-conception (Bandura, 1982; Weiner, 1974).

However, none of the theories, whether that of Bloom or that of Sarbin & Allen, can easily be applied to the teaching of written composition. The teaching of written composition is already quite highly individualized, and the role of positive motivation in a cognitive skill like writing is debatable. Moreover, the teaching of writing distinguishes itself from other domains of instruction because writing is a communicative act. However, we have already observed, many teachers did not allow the absence of a scientific didactic theory explaining these effects of peer evaluation in the teaching of writing to prevent them from applying the principle in practice. We will analyze publications on peer evaluation and written composition ability for causal assertions and from these have constructed a common sense theory. Then we will briefly examine the empirical data available to us.

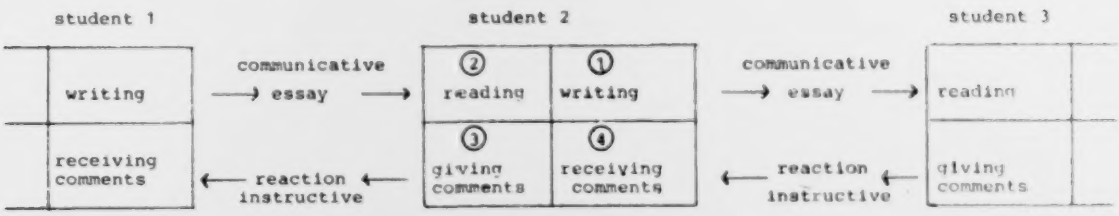
2. COMMON SENSE THEORY

We have made an inventory of causal assertions about elements of peer evaluation and written composition ability in a variety of ways. We have interviewed eleven teachers using peer evaluation and their students (Triesscheijn, Bochardt & Rijlaarsdam, 1984). We have analyzed learner reports of students who were confronted intensively with peer evaluation in the written composition course they received (Rijlaarsdam,

1985). By means of a computer search (see appendix 1) we have analyzed articles by teachers and mother tongue educationists (Rijlaarsdam, 1984). The following is a highly condensed summary of our findings.

The process of peer evaluation, applied to the teaching of written composition, can be roughly divided into four stages: 1. writing; 2. reading; 3. commenting; 4. receiving comments. These four stages make up two complementary couples. In the first two stages, the communicative couple of writing and reading, the communicative act is dominant: there is very little intentional learning (see Rijlaarsdam & Hulshof, 1984, p. 190). In the second, instructive, couple, two students find themselves in a communicative relation towards each other, but now they are in the roles of instruction giver and instruction receiver. An instructive message is sent: the response to or comment on the essay. At any given moment a student plays at least two roles in this teaching/learning process. When he is writing, he is also the audience for another student. When he is reading, he reads as a reader but also as a student; he is reading partly in order to learn from his reading. When he is commenting, he is also the addressee for another student. When he is receiving comments, he is a commentator for another student. These relations are illustrated schematically in fig. 1.

Figure 1: A diagram of student response



Writing. Compared to teacher feedback, the task situation of the writer is characterized by three elements. (1) First and foremost, the essay is meant to be **read**; the stress is not on gaining marks or grades. Thus the texts will function communicatively rather than as school exercises. And because content now is more important than formal aspects, it might

well be the case that the writers will experience the task situation as less threatening. (2) There will be readers. To avoid being misunderstood, the writer will have to pay more attention to careful formulation and editing. (3) Readers are peers, not teachers, so that it is easier for writers to pass on new contents to readers.

Reading. By reading one another's texts students experience the natural reactions of readers: personal preferences, points of view, and prior knowledge all prove to play a part. This knowledge, as well as knowledge gained through a natural form of modeling (text models, vocabulary etc.) will might play a part in the next writing task. Students experience the dynamics of communication and knowledge: writing tasks can be tackled in very different ways, all rhetorically effective. Reading large numbers of texts offers plenty of reading experience so that students become more perceptive, first of one another's and then of their own texts. This will lead to more intensive and more careful correction and rewriting.

Commenting. In fact, commenting is a very realistic writing task, with a real-life audience. The implicit or explicit criteria acquired through commenting on essays will play a part in the writing of texts and in understanding the comments made by others. Students learn to consider texts as coaches on the sideline of the communication between writer and reader. It might well be the case that this distancing oneself transfers to one's own writing process.

The commenting process of students has recently been the subject of study. The studies concerned show that some progression can be detected in the aspects students pay attention to (Hilgers, 1984) and that there are clear signs of the effect of teaching on the nature of the comments given (Hilgers, 1984; Ziv, 1983; Rubin, 1983). What causes problems for students is the conflict of roles between coach and communicator (Newkirk, 1984a; 1984b). They tend to allow themselves to be distracted by the subject of the essay and to read it in a 'filling-in' way as a result of which they

are less likely to notice structural shortcomings in the text. Teachers, by contrast, make the text do the work. Then again, students prove to be less flexible than teachers when it comes to applying the models they have learned: a very individual text was greatly appreciated by teachers, while students rejected the same text because it did not conform to the models they had learned at school.

Receiving comments. The feedback situation differs from teacher feedback in three respects: the number of feedback givers, the speed of the feedback, and the person of the feedback giver. The number of feedback messages means that the students are less dependent on a single judgement and that they have to manifest more responsibility towards themselves in selecting from and accepting feedback. As a rule, students expect more from fast feedback than from delayed feedback. At the same time, the fact that the feedback is given by the intended readers means that the receivers regard the feedback as valid. It is accordingly more likely to be taken to heart. It also becomes apparent to the students that clarity and grammaticality are not merely the professional interest of the teacher but that these are also of communicative importance if one is to be properly understood.

The process of assimilating comments has been investigated in a number of studies. Jones (1977) observes that in 50% of cases students rightly reject comments. All sorts of factors play a part in this process. Rubin (1983) concludes that students need time to convert the acquired critical skills into skill at textual revision. Davis (1982) demonstrates that giving oral comments does not work out well. Stone (1981), Ziv (1983) and Jones (1977) examined the respects in which the comments of peers were accepted: comments regarding content were least likely to be accepted by writers. The same result was obtained by a process study in which students revised their texts while thinking aloud (Bochardt & Rijlaarsdam, 1984). Differences in accepting and rejecting comments may also be due to differences between writers. Good

writers do not confine themselves to superficial features (Stone, 1981). Berkenkotter (1984) shows that personalities of writers (autonomy) have an effect on how they deal with criticism from other students.

3. EMPIRICAL EVIDENCE

Table 2 summarizes the results of 21 experimental or quasi-experimental studies with peer evaluation as an independent variable and writing ability and/or writing attitudes as dependent variable(s).

Table 2: The variables that were related in 21 effect studies to writing ability and attitudes to writing or writing apprehension; in parentheses, the number of times the relation was investigated. The numbers refer to the studies listed in appendix 2.

Variables	Written composition skill			Attitudes/Writing apprehension		
	not tested	no significant effect	significant effect		no significant effect	significant effect
Didactic parameters						
1. Teaching program (21)	2	3,4,6,7,9, 11,14,16,17,18 20,21	1,5,8,10,12 13,15,19	(10)	1,3,7d,9,14, 15,17,20	7d,11,21
2. Teacher (8)		4,5,6,11,14,18	1,11a,20	(4)	11,14c,20e	1,14c,11a 20e
3. Class (2)		6,17			17	
Student parameters						
4. Sex (3)		4,19b	1,19b	(2)	20	1
5. Intro/Extroversion (2)	14,17					
6. Writing Apprehension		11				
Interactions						
7. prog. x teacher (5)		5,11,18,20	1	(3)	1,11	20
9. prog. x sex pupil (4)		11	1,9,16,19	(2)		1,9
9. teach. x sex pupil (2)		1,4		(2)	1	20

a: Fox (1979) : teacher effect does not occur in analyses of whole group; does occur in analyses of subgroep (high/low writing apprehension).
b: Sager (1973) : sex effect on three subvariables, not on two others.
c: Lyons (1976) : teacher effect occurs for 1 subvariable of attitudes; not on three other subvariables.
d: Delaney (1980) : significant effect on some attitude variables, not on others.
e: Sears (1971) : teacher effect occurs for effort expectations, not for estimate of own ability.

Does the use of students as commentators on essays have a greater effect on writing ability than have the teacher comment on them? From table 2 it will be read that statistically significant differences could be shown between the scores of the different groups only in eight of the 21 studies. Of those studies, seven gave a positive result in favor of the experimental program, and one, Earls (1983) found the control program to be superior. The picture is no better when it comes to attitudes towards writing or writing apprehension: a significant difference in favor of the experimental program was detected in three studies out of ten.

Of the variables in the Teaching Features category the teacher variable is the most important. Several studies were set up in such a way that one teacher taught two classes: an experimental and a control class. In the studies by Benson (1979), Fox (1979), Lyons (1976) and Sears (1971) the teacher variable is found to cause a statistically significant effect. In Benson's study (1979) the effect is spurious, since the teacher variable coincides with the years and age of students, with differences between schools. In Fox (1979) the effect of the teacher variable is apparent only when the data on a subgroup, viz. those with high writing apprehension, are analyzed. It is not inconceivable that this group of students is particularly sensitive to the person of the teacher. In Lyons (1976) the teacher effect is demonstrated only from one attitude concept, 'showing my writing to teachers', which is understandably a teacher-dependent concept. In research that Sears (1971) conducted, she demonstrated a teacher effect on both writing performance and an attitude concept: estimating effort. No teacher effect was found on another attitude concept estimating one's own ability. In short, when it comes to attitudes, a teacher effect is demonstrated in three studies, with the same studies showing no teacher effect on other concepts of attitude. Some attitudes, then, do appear to be affected by the teacher. In the case of writing ability a

teacher effect is not likely to occur except in a sensitive group of students (Fox, 1978)

The student parameters that were investigated and tested were sex, degree of introversion and extroversion, and writing apprehension. Benson (1979) found that girls performed better than boys; Carter (1982) found a similar tendency, though it was not statistically significant. Sager (1973) found a significant sex effect for three highly correlated variables (supporting information, sentence structure and overall assessment), but not for two other variables (vocabulary, organization). Benson (1979) found a sex effect for essay quality, attitude, length of essays and revision at the paragraph level, all in favor of girls. When a sex effect is found, it is always a matter of girls performing better than boys.

Fox (1978) showed that students with high writing apprehension performed significantly better after Fox's experimental teaching procedure than those students with high writing apprehension who were taught in the control condition. We have already seen that it looks as if this group of students is more sensitive to the personality of the teacher: this also appears to hold for the teaching that is given.

Of the investigated interactions those between program and other variables is interesting. Now that it turns out that the interaction between teacher and program is significant in only two out of eight cases, we may expect to find that teachers do not produce systematically better performance in either of the programs they use. A conspicuous feature is the relatively high incidence of a significant interaction demonstrated between program and sex of students, namely five times out of six. This might be taken to indicate that the teaching programs are sex-specific. Benson (1979) found that girls benefited from structured, informative student feedback, whereas boys fared better in the teacher feedback condition. Myers (1979) found that there was no difference between boys and girls in the control condition but that girls did significantly better in the experimental condition.

Farrell (1977) reports results that contradict this. Sager (1978) reports a leveling effect of the experimental teaching program: the differences between boys and girls became smaller in the experimental condition. The boys benefited from student response. Although we must be aware that such interaction can occur, there is too little to go on to cherish particular hopes about such interaction.

A conclusion of quite a different sort is the following one. It can be deduced from table 2 that the reporting in the consulted studies is defective. Sometimes results are reported for the main effect of teacher, but there is nothing about any interaction between teacher and program (4, 6, 14, see table 2). In an investigation in which sex is included as one of the variables, there is no reference to an interaction between sex and program (e.g. 4). Only one investigator (Fox, 1979) has taken advantage of the opportunity to analyze data for subgroups. Otherwise we should have had more information about the effect of the level of writing ability: is student feedback an efficient teaching procedure mainly for good or mainly for bad students?

Since some studies distinguish several different aspects of written composition ability. in a second analysis of these studies we examined the independent variables within writing ability, It might be possible to track some promising subvariables. The data in table 3 show that differences were expected principally in formal qualities. In ten studies, differences in quality were looked for within the categories of Spelling and Punctuation and Formulation and Style, in three of them successfully. Differences in Organization and Content were expected much less often. Significant differences were found conspicuously often in none of the variables named in table 3.

No particularly promising dependent variables emerge from table 3. It is striking that the investigators stressed formal aspects of usage rather than rhetorical aspects, whereas the impression in educational literature is that it

is precisely these rhetorical aspects that are considered to be more, or at least equally, important.

Table 3: Specific Writing Performance Variables in effect studies. The numbers refer to the studies in appendix 2.

Category	Subcategory	
Spelling and punctuation	- spelling errors	7
	- punctuation errors	3*,7,16*
	- knowledge of spelling and punctuation	5*,8,15*
	- knowledge of grammar	5,10,15*
Phrasing and style	- vocabulary	19*
	- errors in phrasing	7
	- correct, varied sentence structure	7,15*
	- good phrasing	19*
	- sentence openings	2
	- number of woord per T-unit	1,3,20
Organization	- clear line	7,15*
	- logical organization	7,16,19*
Content	- foundations, elaboration	7,19*
	- clear theme	7
	- interesting	7
	- consistent point of view	7
Length	-	1*, 11
Revision	- total	1*
	- cosmetic	1*
	- word	1*
	- sentence	1*
	- paragraph	1

* = significant ($p < .05$)

An analysis of the study reports revealed at least three problems. First, in only three of the studies (Benson, 1979; Myers, 1979; Ward, 1959) the statistical power was sufficiently high, i.e. greater than 80%. Second, in all the quasi-experimental studies the data proved to have been analyzed at the level of individual scores, though it was not individuals but classes that had been randomly assigned to the condition. This means that the investigators were testing against far too many degrees of freedom, because the number of degrees of freedom was not corrected for intraclass correlations. Third, in two-thirds of the studies peer evaluation turned out not to be the only variable which the

two conditions differed, so that interpretation of the results was difficult and complicated.

4. HYPOTHESES

In our study we examined effects on attitudes, on performance variables and writing process variables. This last cluster will be disregarded here (see Rijlaarsdam, 1986; Baltzer, 1986; Rijlaarsdam, Baltzer & Schoonen, 1987).

Using students as commentators on each other's texts will lead to texts showing more signs of the awareness that writing is communicating: the texts will then become goal and audience oriented. They will not reflect the content as it is stored in the memory of the writer, but an adaptation of it (cf. Flower's (1979) concepts of 'writer based prose' and 'reader based prose'). Because of the communicative situation and the acquired models, essays will improve in style and organization. We also expect students to gain more confidence in their own ability from student response. They will enjoy in writing more. Students will find having their essays read or assessed less threatening. Their attitude towards being assessed, implied by all written communicative acts, will be more positive.

We will also consider whether it is true that weak students gain more from peer feedback and good students from teacher feedback. Good students are hypothesized to learn less from texts that are below their level, whereas by contrast weak students can profit from 'the zone of closest development' (Hoover, 1972). We shall also look at possible interactions between other student parameters and the teaching programs. Girls, for example, seem to have a tendency to ascribe their underachievement to a lack of ability when the feedback is provided by the teacher. With boys this attribution process occurs when they receive negative feedback from their peers (Dweck et al., 1978). Thus for underachieving girls teacher feedback, and for underachieving boys peer feedback, may be

disastrous. This pattern may be further intensified by a high degree of writing apprehension.

5. METHOD AND PROCEDURES

The purpose of the investigation was to test an experimental method of teaching written composition. The experimental design used included a pretest, a midtest and a posttest, in which classes were blocked on the teacher variable. We were able to use eight schools and a total of eleven teachers. Each teacher taught two ninth-grade classes which were assigned arbitrarily to one or another of the conditions. In the experimental condition the students taught each other by commenting on each other's essays in writing. In the control condition the commenting task was reserved for the teacher. Dependent variables were Writing Performance Variables (Goal orientation, Audience orientation, Organization and Style) and Psychological Variables (Fear-of-not-being-able-to-write, Attitude-towards-writing, Attitude-towards-being-evaluated). The comparison was carried out with the class as the analysis level. So that the effect analyses would allow for possible initial differences between classes, covariance analyses were used as far as possible, with pretest scores as covariate. Descriptive statistics were used to determine the quality of the instruments and to describe test performances. Relations between Psychological Variables and Writing Performance Variables were described using Pearson's product-moment correlations.

5.1. PROCEDURES

The survey was conducted in the third classes (ninth grade) of the VWO and HAVO departments (the highest and second highest type of Dutch secondary school) at eight different schools. Eleven teachers each taught two classes. Their age varied from 27 to 48 (mean 37), their teaching experience

from four to 25 years (mean 15). At three moments all students spent 90 minutes writing an essay, especially written for this study only. The task was the same for all students. It had to be a discursive essay making use of provided documentation. The midtest was identical to the pretest and was given after three teaching blocks (see teaching programs), or five months. The posttest was not identical but similar to the pretest and midtest. The posttest followed three months after the midtest. Between the midtest and the posttest a single teaching block was given. At all test moments an attitude inventory was taken also.

5.2. INSTRUMENTATION

Essay scales were constructed for each performance variable (Goal Orientation, Audience Orientation, Organization and Style). These scales are a series of essays gradually increasing in quality which are a useful aid to raters because differences in quality and the associated textual features are clearly shown. Between two and five evaluative questions were asked for each variable, each question being accompanied by essay features that would be found in the essay to be evaluated in the case of a positive or negative answer, as the case might be. The following evaluative questions were asked:

Audience orientation: The relation between writer and reader: does the writer make contact with the reader? The relation between subject and reader: does the text contain content elements from which it is apparent that the reader has some first-hand knowledge of the subject?

Goal orientation: Does the text contain a clear standpoint? Does the text contain content elements that increase/reduce the cogency of the argument?

Organization: Is the text well arranged visually? Is the essay well divided into beginning, middle and end? Is the principal theme formulated in the introduction and end? Are

the paragraphs properly linked? Are they properly structured?

Style: Is there variation in sentence structure and vocabulary? Does the essay contain linguistic and stylistic devices? Is the language personal?

For the Psychological Variables an inventory was constructed on the basis of Miller & Daly's Writing Apprehension Test and Bergen's Situation-Specific Apprehension Test. The instrumentation resulted in three scales: Fear-of-not-being-able-to-write, or Ease of Writing (EaW) (14 items, Cronbach's alpha .90, characteristic item: Even before I begin my essay I think it will turn out badly), Attitude-towards-being-evaluated, or Rewards of Writing (ReW) (8 items, Cronbach's alpha .80, characteristic item: I would like my friends to read what I have written) and Attitude-towards-writing, or Enjoyment of Writing (EnW) (9 items, Cronbach's alpha .91, characteristic item: Writing is fun). All items correlated with their scale .47. The correlations between the scales varied from .41 to .48.

5.3. EXPERIMENTAL AND CONTROL TEACHING PROGRAM

Development of the experimental teaching program.
At a school one of the authors and two fellow teachers developed and tested a procedure for teaching the writing of goal-oriented and audience-oriented discursive texts in four third forms in two sorts of secondary schools (comparable to ninth grade). By means of process research, questionnaires, analyses of the reliability of the feedback instruments, and learner reports, this procedure was evaluated and refined. The final program contained four block courses of 10-12 lessons each. All block courses were constructed on the same pattern, as follows.

A. **Preparatory lessons** (3-6 lessons). In these lessons the students studied instruction texts on aspects of writing and texts. Two aspects were introduced in each course: goal and audience orientation in the first course, organization and

thrustworthiness in the second, news value and usage in the third. In the fourth course the instruction text contained a synthesis of all the steps in the process that had been dealt with up to that point. More over, in the preparatory lessons some tasks were formulated to study writing tasks and information on the subject consisting of articles or cuttings from newspapers, magazines and brochures. The students then wrote, in class, a rough draft first and then a first version. As a reflection task they then described how their first version had been written ('How did the writing process go this time?') and what they themselves thought of their texts ('What do I think of my essay?').

B. **Commentary lessons.** Each student was given a copy of the essays of three arbitrarily selected, anonymous peers. He read each essay and by means of a subjective reaction form with items like 'I am not convinced' indicated his impression of what he had read. After this first reading the student carried out his second reflection task: 'What have I learned from reading texts written by another?' Then he read the same essays more closely and gave more detailed feedback by answering questions on a comment form. The aspects on which comments were given corresponded to those in the instruction texts. Five questions of this type were asked on each aspect. Besides answering these comment questions the commentator also had to carry out a variety of tasks in the essays themselves, such as indicating audience-oriented sentences and phrases and the transitions between introduction, body and end. At the same time some of the comment questions obliged the commentator to indicate features to be judged positively or negatively in the essay itself.

Commenting on an essay took 30-45 minutes. Students performed the task in two lessons; what they did not finish in class they did at home. For the conclusion of this stage students carried out a third reflection task: 'What have I learned from commenting on received texts written by another?'

C. **Processing comments.** Students were given subjective reader-based and objective criterion-based feedback, all

notes on their essays, and any further written notes to these assessments, from three anonymous commentators. They ordered the comments, summarized them and wrote comments on them. It was stressed in their instructions that writers were responsible for their own choice from the feedback, but that they had to give reasons for their choice. Next, the students then drew up a rewriting plan in which they indicated what they planned to change and how they wanted to change it. Processing comments was done partly at school (2-3 lessons) and partly at home.

D. **Final version.** On the basis of the rewriting plan a final version was written in the course of a single lesson.

The student then gathered his work together in a ring binder. The teacher evaluated the binders for each block course for their completeness and neatness and for the quality of the work, but not the essays. Every quarter a student selected one of his essays for evaluation by the teacher for a mark counting towards his end-of-term report.

The students in the control groups went through exactly the same program, except that at stage B it was the teacher who provided the feedback, using the same forms, criteria and tasks as in the experimental condition. The teacher spent approximately half an hour on each essay.

5.4. DATA COLLECTION

561 students participated in the main survey. We had test data on 76% of these students. For the analysis twelve students were selected at random from each class. This subgroup was found to be representative as far as the Psychological Variables, the only dependent variables for which we were able to make this comparison. Scores of these twelve students formed the basis for the calculation of the class scores.

The 792 essays (22 classes x 12 students x 3 tests) were typed and evaluated by two trained raters using the essay scales for Goal orientation, Audience orientation,

Organization and Style. The inter-reliability of the essay rating (n=792) varied from .64 (Audience orientation) to .78 (Organization, Goal orientation), with a mean of .74. Intra-reliability (n=30) varied from .69 (Organization) to .92 (Style), with a mean of .85.

At the three test moments an attitude inventory was taken of all students. This consisted of 31 items representing three variables. To determine how the scales behaved in the main survey they were analyzed again. The items were mirrored in such a way that a high score is positive: little apprehension (EaW) or positive attitudes (ReW and EnW). The scores of subjects who failed to answer one or more items were not included in the calculations.

For each scale the homogeneity (Cronbach's alpha), the item/rest correlation and the correlations between the sum scores of items from the three scales were calculated. All calculations were carried out separately for each administration of the tests. The correlations between the scales vary from .27 to .40, with a mean of .34. The scales proved to be homogeneous. Cronbach's alpha and item/rest correlations were calculated separately for the three moments. For the 'Fear-of-not-being-able-to-write' scale the alphas were .90, .89 and again .89 and the item/rest correlations varied from .35 to .71. The alphas of the Attitude-towards-being-evaluated scale were .80, .81 and .82; the item/rest correlations varied between .29 and .66. For the 'Attitude-towards-writing' scale we found alphas of .90, .93 and again .93 and item/rest correlations varying from .56 to .85.

5.5. MONITORING THE IMPLEMENTATION

The implementation of the teaching programs was monitored by three methods: teacher and student logbooks, observations and questionnaires. Throughout the program, both teachers and students kept logbooks. Analysis of these showed that

teachers sometimes found it necessary to make small adjustments to the timetable in the teacher manual. None of these changes materially affected the programs.

Lessons were observed at two moments viz. during the second and fourth teaching block. From the time-on-task observations it became clear that the average student spent about thirty minutes, three-quarters of a lesson, on those things that the program demanded of him. The experimental group seemed to be more involved in the teaching program than the control group, though the differences in the fourth teaching block were no longer statistically significant.

On the same two occasions questionnaires of between 61 and 86 questions were completed. Using the results from these questionaires it was possible to determine whether according to the students, all planned learning activities had taken place. It was also possible to see which feedback messages the students had received, and we could establish any differences between the two conditions. Third, we were able to find out what students themselves thought of the quality of the feedback they had received and what influence they thought the comments had had on the rewritten versions of their essays.

Table 4: Average time spent on lesson content in the two conditions in percentages of total time (n=36) (E=experimental group; C=control group)

Moment of observation	Groups E		Groups C		
	mean	sd	mean	sd	t-value
2nd block	83.80	17.24	72.14	17.27	2.87*
4th block	78.72	16.27	73.56	15.73	1.36

*significant $p < .05$

In terms of circumstances (Independence, Teacher effort, Working atmosphere, Own effort) the two conditions proved to

activities. The core tasks of the commenting task emerged as having been strongly implemented in the Experimental condition. The students were found to have put a lot of time into the commenting task only about 10% said they had finished with an essay within a quarter of an hour, whereas 8% (second block) and 24% (fourth block) spent 45 minutes on it. From the answers to questions on the comments received it was indeed apparent that the core of the feedback task was strongly implemented. However, there were still some differences between the Conditions. In the Experimental Condition 53% of the students said that one or two of their classmates wrote no comments in the essay itself, whereas in the Control Condition 26% of students made the same observation of their teacher.

Table 5: Nature and quantity of feedback in both conditions at two moments. The percentage of students per condition who said they had received no comment from their teacher (control condition) or little or no comment from one classmate (experimental condition). (E=Experimental group, C=Control group)

	Block 2		Block 4	
Commenting tasks	E	C	E	C
1. Filling in 12 reaction statements	5.7	14.0	n.a	n.a
2. Description of first impression	12.3	15.2	15.9	17.3
3. Answering of comment questions	10.3	18.6	9.1	19.3
4. Description of writer's intentions	8.4	9.5	11.3	13.9
5. Wavy lines under audience-oriented sentences	54.3	26.9	36.4	39.4
6. Marking of parts (beginning, middle, end)	48.8	34.9	n.a	n.a
7. Marking of principal sentences in paragraphs's	49.0	26.9	n.a	n.a
8. Marking of linking words and sentences	64.7	30.6	n.a	n.a
9. Marking of structure-indicating words and sentences	77.7	53.7	n.a	n.a
10. Reaction signs in margin	44.4	33.0	n.a	n.a
11. Placing reference numbers for comment questions in essay	61.1	23.3	48.2	23.3
12. Writing amplification to answers	28.1	35.3	18.9	32.4
13. Writing remarks in the essay	53.1	26.1	52.3	32.2

By far the majority of students in both conditions appreciated of the feedback they had received. It was conspicuous that in the control condition in the fourth block very few students had a negative opinion of the feedback they had received from their teacher (table 6).

Table 6: Dissatisfaction concerning the feedback received. Percentages of students who negatively judged the comments of two or three peers (E) and the teacher (C). (E=Experimental group, C=Control group)

	block 2		block 4	
	E	C	E	C
Clarity	11.6	22.6	10.9	5.3
Care taken	27.7	16.2	16.0	2.7
Helpfulness	33.2	21.0	25.5	1.5

Assimilation of comments also proved to be strongly implemented. There were no great differences between the conditions.

6. RESULTS

We have already seen that the most important condition for testing was met. In both the experimental and the control condition the program was well implemented. At the same time the dependent variables were measured as being reasonably reliable (interrater reliability for the performance variables and homgeneity for the Psychological Variables).

Testing of effects of the program was separate for the performance variables (Goal Orientation, Audience Orientation, Organization and Style) and the Psychological Variables (Ease of Writing, Rewards of Writing and Enjoyment of Writing). In the following we first report on the performance variables and next on the Psychological Variables. We will then explore the effects of variables such as sex, writing ability and writing apprehension.

6.1. WRITING PERFORMANCE

Table 7 shows the correlations between the Writing Performance Variables at various times for the total sample and for the experimental and control groups.

Table 7: Correlations between pretest, midtest and posttest scores for Writing Performance Variables for all classes (T) (n=22) and the classes in each condition (E/C) (n=11)

	Pretest - midtest			Pretest - posttest		
Dependent Variables	T	E	C	T	E	C
Goal Orientation	.38	.41	.41	-.02	.27	-.35
Audience Orientation	-.02	-.22	.51	.22	.27	.49
Organization	.36	.19	.70	.52	.62	.37
Style	.52	.47	.60	.66	.63	.71

The values of the correlations between performance at various moments justify a covariate approach, at least in so far as there are differences in performance between the moments. Table 8 gives the mean and standard deviations at the three moments.

Table 8: Mean and standard (in parentheses) deviations of class scores in both conditions on the pretest (1), midtest (2) and posttest (3) for the dependent variables Goal Orientation, Audience Orientation, Organization and Style (all four by scale assessment)

	Condition					
	Experimental (n=11)			Control (n=11)		
	Testing moment					
	1	2	3	1	2	3
Dependent Variables						
Goal Orientation	102.48 (4.23)	105.42 (5.01)	105.55 (5.97)	100.92 (4.73)	106.70 (5.89)	106.72 (4.11)
Audience Orientation	103.37 (2.96)	106.60 (5.79)	100.30 (4.20)	100.98 (2.40)	108.52 (4.56)	101.92 (3.08)
Organization	91.54 (3.96)	101.88 (4.50)	106.23 (6.08)	91.92 (2.47)	99.53 (5.20)	106.56 (5.84)
Style	101.34 (3.98)	104.85 (5.95)	111.68 (3.69)	101.87 (3.32)	105.93 (4.49)	112.17 (2.95)

There are small differences between the mean class scores at three moments.

By and large the assumptions for MANCOVA are met, so testing is justified.

The differences between the conditions at the second moment, corrected for the scores on the pretest, are small (MANCOVA: F=1.97, df=4/13, p=.16), at the third moment negligible (MANCOVA: F=.57, df=4/13, p=.69). In other words we are unable to show any statistically significant difference between the conditions.

6.2. PSYCHOLOGICAL VARIABLES

Table 9 gives the correlations between the Psychological Variables at the three moments, for the total sample and for the experimental and control groups.

Table 9: Correlations between pretest, midtest and posttest scores for Psychological Variables for all classes (T) (n=22) and the classes in each condition (E/C) (n=11)

	Pretest - midtest			Pretest - posttest		
Dependent Variables	T	E	C	T	E	C
Fear-of-not-being-able-to-write	.61	.61	.61	.81	.73	.89
Attitude-towards-being-evaluated	.53	.33	.72	.46	.30	.72
Attitude-towards-writing	.58	.14	.72	.49	-.10	.74

These correlations in table 9 also make a covariate approach useful. Testing is only justified if there are differences between means. Table 10 shows that these differences exist.

The differences in table 10 were tested with MANCOVA. The assumptions for MANCOVA are fulfilled. The multivariate null hypothesis cannot be rejected for the Psychological Variables. (Moment 2: F=.12, df=3/15, p=.95; moment 3: F=.30, df=3/15, p=.83). There are no statistically significant differences between the conditions.

Table 10: Means and standard deviations (in parentheses) of class scores on the Psychological Variables.

	Condition					
	Experimental (n=11)			Control (n=11)		
	Testing moment					
Dependent Variables	1	2	3	1	2	3
Fear-of-not-being-able-to-write	47.20 (3.20)	47.06 (4.12)	47.69 (3.02)	46.48 (3.03)	46.72 (3.85)	47.19 (3.54)
Attitude-towards-being-evaluated	24.10 (2.54)	25.17 (1.65)	25.06 (3.45)	24.53 (2.40)	24.83 (2.42)	24.81 (2.48)
Attitude-towards-writing	27.02 (1.52)	24.79 (2.61)	25.55 (4.01)	25.30 (3.86)	24.01 (3.47)	24.57 (4.22)

6.3. EXPLORATIONS

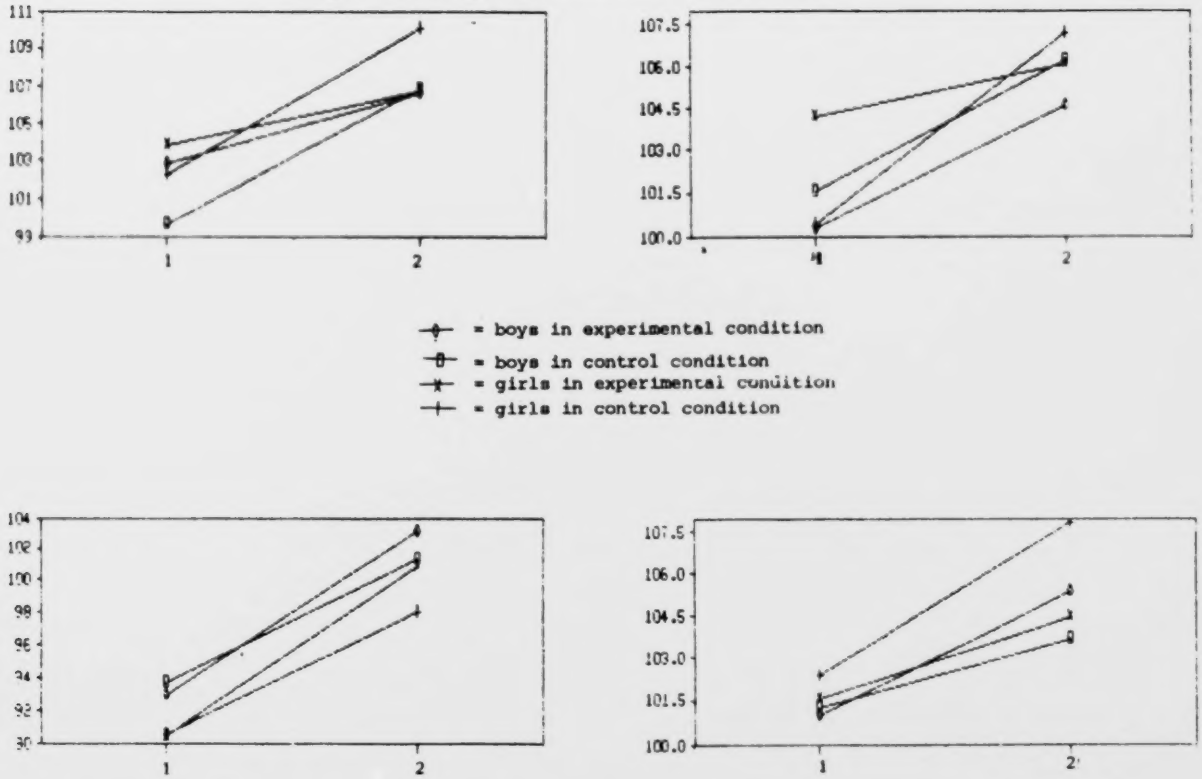
In our discussion of the literature we observed that peer evaluation may sometimes be suitable for particular groups of students. Three important intermediating variables emerged: sex, writing ability and writing apprehension.

By way of exploration we looked to see what effect these variables had on the performance variables. Here we left class level and carried out the analyses at student level. This also meant a considerable increase in statistical power, though the number of degrees of freedom for the test was overestimated due to intraclass correlation. Because of the exploratory nature of the analyses, no correction (2/3 * degrees of freedom) was carried out.

The relation between program and sex was examined using multivariate covariance analysis with the independent variables program, sex and teacher, covariants the performances at moment 1, and dependent variables

performances at moment 2 and 3 respectively. A sex main effect could be demonstrated for performance at t2 (F=4/212, df=3.420, p=.01). From univariate analysis it emerged that this was principally a matter of the build-up scores: boys score higher than girls. At t3 there was no longer any question of a statistically significant sex effect. The interaction effect of program and sex was not significant (F=1.47, df=4/212, p=.21).

Figure 2: Progress by boys and girls in experimental and control condition, broken down by the four dependent performance variables



The same applies to the poor and good achievers. For each dependent variable (Goal Orientation, Audience Orientation, Organization and Style) a group of poor achievers and a group of good achievers was defined by selecting those students whose achievements were below or above the lowest and highest quartiles respectively. (All our comparisons from now on are between moment 1 and moment 2, since that is where we

expected to find the greatest effects.) Table 11 gives the results of the tests for each dependent variable and each group.

Table 11: Results of MANCOVA tests of treatment effects for selected groups: low initial level on Goal Orientation, Audience Orientation, Organization or Style, or high initial level on Goal Orientation, Audience Orientation, Organization or Style.

Group	Selection variable	F-value	degrees of freedom	p-value	number cases
LOW	Goal Orientation	.62	4/58	.65	67
	Audience Orientation	1.76	4/59	.15	68
	Organization	.72	4/64	.58	73
	Style	.36	4/59	.84	68
HIGH	Goal Orientation	1.97	4/55	.11	64
	Audience Orientation	2.67	4/50	.04	59
	Organization	1.83	4/51	.14	60
	Style	2.78	4/50	.04	59

For poor writers (first quartile) there is no difference between the programs. For good writers (fourth quartile) there appear to be some differences between the programs. Students who score high on Audience Orientation benefit more from the control program, those who score high on Style benefit more from the experimental program. However, the effects are small and not unambiguous.

The results show no differential effect for peer evaluation for a particular category of writers. When we analyze the results of incorrect qualification of poor achievers in terms of the Psychological Variables the effects are almost totally absent. Here again we carried out analyses for the first and fourth quartiles. The results are given in table 12.

In these groups too no unambiguous differential effects could be demonstrated. The marginal significance for the group

'very eased about writing' favored the experimental program and was expressed mainly in Organization scores.

Table 12: Results of MANCOVA tests of treatment effects for selected groups: low initial level for Ease of Writing, Rewards of Writing or Enjoyment, or high initial level for Ease of Writing, Rewards of Writing or Enjoyment of Writing.

Group	Selection variable	F-value	degrees of freedom	p-value	number cases
LOW	Ease of Writing	1.25	4/50	.30	59
	Rewards of Writing	1.27	4/50	.29	59
	Enjoyment of Writing	1.15	4/49	.34	58
HIGH	Ease of Writing	1.95	4/71	.11	80
	Rewards of Writing	.89	4/43	.48	52
	Enjoyment of Writing	1.44	4/59	.23	68

Finally, the literature suggests that peer feedback is superior to teacher feedback principally for underachieving girls, and that for underachieving boys the reverse holds: teacher feedback is suggested to be superior to peer feedback. To explore this hypothesis we carried out the MANCOVAs for girls and boys with a low initial level (t1) on performance variables, lower than the median score for the whole sample. The results in table 13 show that once again there is virtually no differential effect. The effect for girls scoring low on Goal Orientation (t1) is in favor of the control group. The marginal effects for girls on Organization and Audience Orientation, by contrast, were in favor of peer feedback. For underachieving boys there are no clear effects at all. In short, the effects are either absent, or they are small and point in different directions. We also had to make allowances for chance capitalization.

These explorations were unable to find any clear treatment effects for particular selected groups of students. Thus,

this survey provides no support for the theses (see xxx). In the next section these results are evaluated.

Table 13: Results of MANCOVA tests of treatment effects for selected groups: girls with a low initial level on Goal Orientation, Audience Orientation, Organization or Style, and boys with a low initial level on Goal Orientation, Audience Orientation, Organization or Style.

Group	Selection variable	F-value	degrees of freedom	p-value	number cases
GIRLS LOW	Goal Orientation	2.89	4/62	.03	71
	Audience Orientation	1.73	4/56	.16	65
	Organization	1.82	4/75	.13	84
	Style	.74	4/63	.57	72
BOYS LOW	Goal Orientation	.34	4/52	.85	61
	Audience Orientation	1.55	4/56	.20	65
	Organization	.46	4/41	.77	50
	Style	.82	4/45	.52	54

7. DISCUSSION

Why does peer evaluation have no effect on differences in scores on Psychological Variables and Writing Performance? In this chapter we will suggest and test some explanations. First we will look at the Psychological Variables, after which we will move on to Writing Performance Variables.

A more positive Attitude-towards-being-evaluated was attributed by practical educationists to the safer task situation in peer evaluation, because the evaluating teacher is eliminated. However, with the addition of the rewriting phase to the instruction series in both conditions the task situation was less threaenting than it usually is in the teaching of written composition, where the writing of an essay is commonly associated with grades. Scores on Attitude-towards-being-evaluated show a slight rise in both conditions, but not to such an extent that we can say that

perhaps the addition of a rewriting phase would lead to less writing apprehension, unless the fear of being evaluated commonly increases during the course of the year in which a student is in the third form of HAVO and VWO schools, and our teaching programs inhibited that increase. But we know nothing about the 'normal' level of Attitude-towards-being-evaluated. In any event, peer evaluation does not lead to progress on this variable. By comparing their products with those of another it was thought that students would acquire more knowledge about their own skills, and that this would lead to increased confidence in their own ability and hence to lower scores on the Fear-of-not-being-able-to-write variable. The scores showed no development during the period studied and no differences between the two conditions. Evidently peer evaluation does not produce an increase in confidence in one's own writing ability.

It was suggested that if students read good texts and started writing better texts they would gain more enjoyment from writing. From table 10 it is clear that in both conditions the enjoyment of writing declined and that there were scarcely any differences between the two conditions. However, the teachers involved in the survey told us while the survey was still in progress that students found the course very intensive. Perhaps the reduction in enjoyment can be attributed to this factor.

That peer evaluation did not lead to differences between the conditions on the three Psychological Variables may be attributed to the differences between the teaching programs, which were perhaps not large enough. We will return to this argument when discussing the results on Writing Performance Variables. In the case of the Psychological Variables we would like to add two further possible explanations. First: it emerges from the correlations between student scores at the various testing moments that the three variables represent a fairly stable trait which evidently does not lend itself to being influenced by a writing skills course at this age. Second: the correlations between Psychological Variables and Writing Performance Variables are very low and en not

even statistically significant. If Psychological Variables changed, as was assumed on Attitude-towards-being-evaluated, with the increasing quality of one's own essays, a causal connection of this kind would be impossible if only because of the absence of covariance. Here we would like to emphasize that there are signs that the Psychological Variables represent stable traits and that there is no connection between these variables and Writing Performance Variables. These two conclusions may separately or together explain why peer evaluation had no effect on the scores for the three Psychological Variables.

How can the absence of differences on the Writing Performance Variables be explained intrinsically? The first explanation might be that there was very little difference between the teaching programs. We did not make things easy for ourselves by comparing peer evaluation with an 'average' way of teaching written composition, but instead constructed a competitor that comprised much more than what is common in teaching written composition. Although the two programs looked as much like each other as possible, there were nevertheless considerable differences between them. In the experimental condition students read one another's essays, commented on them, and received feedback from three other students; in the control condition the students received comments from the teacher only. The students in the experimental condition spent more time (two lessons per block and three-quarters of an hour extra homework) on the teaching program. Moreover there are signs in the logbook analysis and questionnaire survey that there were yet other differences between the two conditions. In the first place, in the control condition the lessons in which the teacher returned students' essays with feedback turned out to be less than quiet: students kept asking for things to be explained and the teacher had to keep going round the class giving additional information. Probably, during these lessons students received a form of extra teaching that was denied the students in the experimental condition. Second, it emerged that teachers more often than students wrote

additional comments in the margin and the first were more likely to put numbers of the questions from the feedback instrument in the margin of the essay. Thus the nature of the feedback may have been different for the two conditions. What value we should place on these two differences remains uncertain. The extra teaching that some students received in the control condition did not apply to the whole class. Those students who asked for and received further information may have been privileged in some way, but the difference can never be raised to the status of a systematic difference. The effect of the additional written comments by teachers may have helped students understand the nuances in the feedback, whereas by contrast students in the experimental condition had to find their own way in the large amount of feedback from three commentators. We believe the differences to be inherent to the two conditions. They are not regarded as blurring the edges of the differences that we were looking for. The differences between the conditions are in our view large enough to justify the expectation of differences in writing performance.

A second explanation for the absence of differences may be that in the experimental condition students learnt from giving criticism, but that the additional gain compared with students in the control condition was nullified by the difference in the quality of the feedback in the two conditions. It seems reasonable to assume that students in the control condition received qualitatively better comments, since these comments were given by an experienced commentator who spent a lot of time on each essay, than those in the experimental condition. Despite this, it emerged from the questionnaire that students in both conditions were satisfied with the clarity, care taken and helpfulness of the feedback they received. Now satisfaction can, of course, be considered an operationalization of the perceived quality of the feedback: we do not know what relation there is between the perceived quality and the objective qualities such as usability and accuracy of the comments. Even so, this does give us an indication that in the judgement of the students

there is not much difference between the two types of feedback at the center of our investigation. On other questions relating to how the feedback was used and its effect on the rewritten versions there was again little difference between the answers in both conditions. All in all, then, our conclusion here is that there was no difference in the quality of the feedback given in the two conditions. This also means that there is some doubt about the added value of peer feedback, a point stressed in the theory. A further investigation of the quality and effectiveness of the feedback given by students and teachers would have to be included in the comparison of peer evaluation and teacher feedback; our survey, because of practical circumstances, gave us no opportunity to carry out any such further investigation.

It is even debatable whether feedback is relevant at all. Certainly it is useful for revising a text that has already been written, but when one produces a new text perhaps the previous feedback fails to provide adequate support. Writing a new text is a new problem-solving process in which specific feedback given during a previous problem-solving process will naturally be of somewhat limited application. We have one piece of information that supports our supposition that feedback is of little value even when it comes from a student's peers. We ranked the classes within a condition according to the proportion of students who expressed dissatisfaction about the usefulness of the received feedback. We did this for both the second and the fourth block. At the same time we ranked the classes on writing performance: both for the midtest and for the posttest, for all Writing Performance Variables individually (Goal Orientation, Audience Orientation, Organization and Style) and for their sum. We then calculated the ranking correlations between the degree to which students complained about the feedback and the various writing performance rankings. Of the ten ranking correlations between perceived quality of feedback and writing performance in the control condition only one was significant. Evidently differences

between classes relating to the evaluation of the feedback are unconnected with differences in writing performance. In the experimental condition we found three significant rank correlations between the perceived usefulness and writing performance, viz. Style (2x) and overall writing performance. These data, together with those from other surveys from which it is apparent that the intensity, the tone, the manner of presentation and even the presence of feedback are all irrelevant (Wesdorp, 1983) lead us to suppose that feedback might be a much less important element of instruction in the teaching of written composition than we used to think. Accordingly it is also quite possible that peer feedback is less instructive than claimed by those who practise it and whose ideas we used for our theory.

If it is true that feedback differences between conditions do not cause differences in performance, and if it is true that feedback contributes little, or even nothing at all, to the improvement of writing performance, then there still is a difference between the conditions as a result of which performance differences might be expected. In the experimental condition students did, and in the control condition they did not, comment on the essays of one another. Thus, in the experimental condition students had more opportunity of internalizing the criteria for a good text, which was also the purpose of the course. Much was expected of this learning activity, and from secondary data it did actually emerge that students in the experimental condition had a better grasp of the criteria than their colleagues in the control condition. Particularly in the lessons referred to earlier in which in the control condition teachers returned essays to students with comments, it was clear that students felt the need for a lot more information. This might be a sign that in the experimental condition there was a greater, and in the control condition a lesser, insight into the content of the criteria. However, in the experimental condition it was one of the rules of the game that students were not allowed to consult one another about the feedback, even though didactically speaking there would be much to be

said for such consultation, since much can be clarified in a one-to-one interaction. It is therefore quite possible that even they did not have as much insight as was previously thought. On the other hand students in both conditions found the feedback clear, helpful and careful, and from this we deduce that students in both conditions still acquired criteria for good texts. It is conceivable that commenting on one anothers' essays gave students in the experimental condition an advantage over those in the control condition, but that this advantage was subsequently nullified by some other factor. It is possible, for example, that students in the control condition reached the knowledge level of those in the experimental condition by receiving feedback based on the criteria, and because the instruction texts in which the criteria were presented in context assumed the function of background knowledge. On the other hand, just as one may question the value of feedback, so one can also question how helpful it is to a writer to know by what criteria a text is judged to be good. Knowing what makes a good text does not make you a good writer. Our expectation that more criteria would be generated in the writing processes of the experimental group was not fulfilled (Rijlaarsdam, 1986). Students generated so few new criteria that the relevant cells remained virtually empty. Perhaps the supposed relation between knowledge of criteria and writing performance is not at all as strong as the advocates of peer evaluation painted it. This finding agrees with Rubin's (1983) findings: students know what is wrong with a text, but they are unable to put it right. Further research is needed to investigate the relation between knowledge of criteria and writing performance.

To summarize, despite the differences in the two teaching programs we believe both led to the students learning more about criteria, both through the feedback on their essays and through the process of giving feedback themselves. This might explain the similarity between the writing performance in the two conditions. We were doubtful about the use of feedback for the new writing tasks and, by extension, about the

usefulness of a knowledge of criteria for the writing of texts. Assuming for the moment that we are on the right track, how might we be able to explain the fact that, by and large, writing performance did improve to such an extent, indeed, that it is difficult to claim that the progress made was due solely to the students' natural maturation? We suspect that the instruction texts about the six aspects of writing (Goal Orientation, Audience Orientation, Organization, Accuracy, News Value and Style) texts which were unusually detailed and comprehensive by the ordinary standards of teaching in Dutch schools contributed to this, as did, we think, the innovation of a revision plan. We have found some evidence to support these conjectures. As already reported, during the second and fourth blocks we asked the students to fill in questionnaires in which they were asked about their participation in specific teaching/learning activities. We distinguished clusters of activities: Preparatory activities (all activities preceding the writing of the first version to be submitted), Commenting Activities, Quantity of Comments, and Comments Processing. Model fitting (LISREL IV) showed that none of these activities was related to the improvement in written composition skill at both testing moments. In the posttest preparatory activities proved to account for over 5% of the improvement in written composition skill, while Comments processing accounted for over 8%. The most interesting point is that the items that carried these scales were related as to content. One of the Preparatory Activities consisted of the students evaluating their own first version using the revision criteria defined in the instruction texts, after which they had to rewrite their essays before submitting them. The item that carried the Comment Processing scale in the posttest comprised drawing up a rewriting plan. Both activities call on students to reflect on their own text and to apply their knowledge of good texts to their own. This 'reprocessing' appears to produce results regardless of the feedback situation. That is, feedback leads inter alia to

reflection by the writer on his own text, provided that it is followed by a rewriting phase.

Even if this study holds little encouragement for the advocates of peer evaluation in the sense that peer evaluation does not lead to better results than intensive teacher feedback, it does offer some help to curriculum designers because it shows that written composition skill can increase appreciably in quite a short time five months. This goes against what many teachers believe, viz. that written composition skill is an objective that teaching can do very little to influence, and that the chief ingredient in the improvement that does occur is maturation in the writer. On the other hand, we were only able to account for 35% of the improvement: 25% was explained by the initial measurement and 10% by the degree of participation in the curriculum. The other 65% remains an intriguing statistic for curriculum designers.

Appendix 1: Sources consulted in the design of a theory of peer evaluation

Barry, 1980
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Appendix 2: Effect studies consulted

1. Benson (1979)
2. Bouton & Tutty (1975)
3. Burt (1980)
4. Carter (1982)
5. Clifford (1981)
6. Copland (1980)
7. Delaney (1980)
8. Earls (1983)
9. Farrell (1977)
10. Ford (1973)
11. Fox (1978)
12. Karegianes et al. (1980)
13. Lagana (1972)
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Tot nog toe zijn de volgende SCO-Cahiers verschenen (prijzen incl. verzending):

nr.		prijs
1.	F. Riemersma, **Van heuristieken naar leren probleemoplossen**	*f* 5,--
2.	G.C. de Vries, **Het open interview als onderzoeksinstrument**	*f* 4,--
3.	J. de Mulder, **Work experience schemes**	*f* 5,50
4.	H. Wesdorp, **Backwash effects of language testing in primary and secondary education**	*f* 6,--
5.	D.J. Bos, W. van de Grift, F. Riemersma en E. Roede, **Bruikbaar evaluatie-onderzoek**. Mogelijkheden en beperkingen voor een programma over evaluatieonderzoek in het onderwijs	*f* 6,--
6.	D.J. Bos en H. Wesdorp, **Een landelijke onderwijs opbrenstpeiling.** Twee bijdragen aan de discussie	*f* 9,50
7.	W. van de Grift, **Aktie-onderzoek als innovatiestrategie**	*f* 7,50
8.	M. van der Kamp, **Drieluik: Kunstzinnige vorming**. Proces en produkt; Wat we in de kunstzinnige vorming nog niet weten; Arts, music and crafts in secondary education: their purpose and effect	*f* 6,50
9.	K. de Glopper, **Basic Language Skills: do they exist?**	*f* 5,50
10.	C. van Calcar, **La Créativité et le Jugement du Maître**	*f* 5,50
11.	W. van de Grift, **Onderzoek ter evaluatie van innovatie in het onderwijs**	*f* 6,50
12.	F. Riemersma, **'Leren probleemoplossen' en 'Wiskundeonderzoek'.** Reisverslag over AERA-congres New York	*f* 6,50
13.	E. van Eck en G.C. de Vries, **Verslag van een klein onderzoek naar de ontvangst van het rapport 'Gelijke kansen in de Beroepsopleiding' in Nederland**	*f* 7,50
14.	E. van Eck en H. Lington, **Uitgangspunten en hun vormgeving.** Enkele resultaten van het Uitgangspuntenonderzoek Middenschool	*f* 6,50
15.	H. Wesdorp, **Enkele impressies van het congres van de National Council of Teachers of English (1)**	*f* 6,50
16.	H. Wesdorp, **On the identification of critical variables in written composition instruction.** Paper presented at the 72nd Annual Convention of the National Council of Teachers of English	*f* 6,50
17.	W. van de Grift, **De initiatie van vernieuwingen in schoolorganisaties**	*f* 8,--

18.	C. van Calcar en P. van den Dool, **Verantwoording evaluatie-opzet** van het creativiteitsproject Maastricht	*f* 15,--
19.	G. Rijlaarsdam, **Audience-oriented writing and peer evaluation.** A paper presented at the CCC Conference, March 1983	*f* 6,50
20.	H. Wesdorp, **Research vs. Tradition: the unequal fight**. The evaluation of the Traditional Grammar curriculum in the Netherlands	*f* 8,--
21.	H. Wesdorp, **Results and effects of the IEA Written Composition Study in the Netherlands**	*f* 4,--
22.	I. Bochardt, **Stelonderwijs en computerondersteuning**	*f* 6,50
23.	H. Blok, **Estimating the reliability, validity and invalidity of essay ratings**	*f* 6,50
24.	H. van den Bergh en J.B. Hoeksma, **Functionele taaldoelen voor het lager onderwijs**	*f* 8,50
25.	W. van de Grift, **Schoolleiders als begeleiders van onderwijs-vernieuwingen** - een overzicht van enkele belangrijke onderzoekingen	*f* 8,--
26.	W. van de Grift, **De invloed van schoolleiders en het schoolklimaat op de prestaties van leerlingen** - een overzicht van 14 onderzoekingen en 3 schoolverbeteringsprojecten	*f* 7,50
27.	F. Haanstra, **Kunstzinnige vorming en onderzoek**	*f* 6,50
28.	H. Blok, G. Rijlaardam, J.B. Hoeksma en K. de Glopper, **Moedertaal-onderwijs in onderzoek** - recente onderzoeksresultaten gepresenteerd op het VIOT-congres	*f* 8,50
29.	J. Arends, E. van Eck, E. Jacobs, L. Veeken en M. Volman, **Verbreding van het onderwijs en de kansen van meisjes en vrouwen**	*f* 8,50
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